



FROST PROTECTION
Trace heating for any application

harmoni



Pre-made self-regulating trace heating cable kit
with built-in thermostat & cold lead

INSTALLATION & TECHNICAL MANUAL



Technical Data

Power supply	230 VAC
Power (@+10°C)	12 W/m
Min. fuse (type C)	10 A
Max. exposure temperature (energised)	65°C
Max. exposure temperature (de-energised)	65°C
Outer jacket	Modified Polyolefin
Cold lead length	2m
Min. bend radius	25mm
IP rating	IP 67
Min. installation temperature	-30°C
Min. switch on temperature	-30°C
Warranty	12 months



Testing procedure prior to installation

It is recommended to test the product before installing

Remove all packaging and place the frost protection cable in the refrigerator for 2 hours.

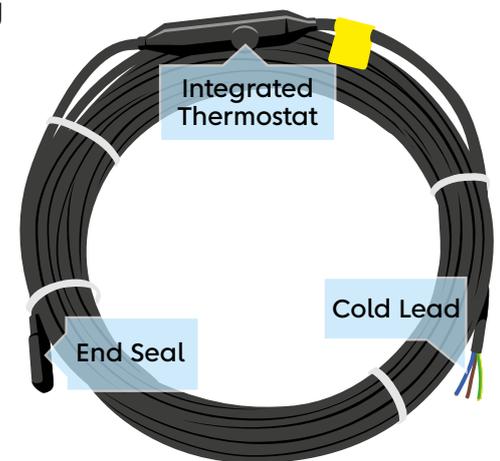
Once removed from the refrigerator, carry out an insulation resistance test between live conductors and earth.

Test continuity between live conductors using a multimeter with a range of up to 2000Ω (because the resistance will vary depending on the ambient temperature as it is self-regulating cable).

Installation

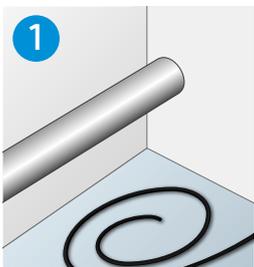
Important notes – Please read carefully

- The existence of the trace heating cable must be shown by on-site warning notices, e.g., in the fuse box. They must also be part of the electrical documentation alongside the installation.
- Ensure that during normal operation the temperature of the pipes does not exceed 60°C.
- Avoid sharp edges as well as high drag forces when installing & drawing the heating tapes.
- Cover the trace heating cable with an aluminium adhesive tape when installing onto plastic pipes & plastic components.
- DO NOT go below the minimum bending radius.
- It is recommended that the installation is carried out by a qualified electrician.
- The installation must be fitted in accordance with the latest local & international regulations and standards.
- Frost protection for pipes up to 54mm diameter.

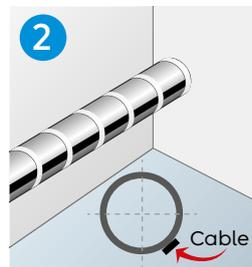


Simple Step by Step Instructions

Follow our simple step by step instructions to install your frost protection trace heating system.



Roll out the trace heating cable. Avoid bending the heating cable beyond the minimum bend radius.

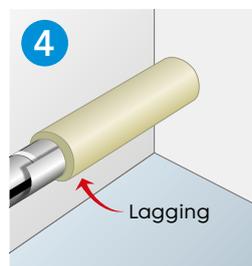


Install the trace heating cable along the pipe – in single or multiple runs (depending on the thickness of the pipe and the required heating power) – and fix it to the pipe at approx. 300mm intervals using the cable ties provided.

Ensure the inbuilt thermostat is in contact with the pipe, under the lagging and positioned at the coldest point.



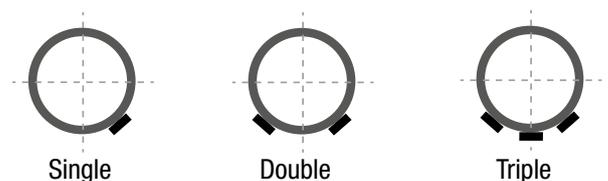
For plastic pipe and plastic components the trace heating cable must be wrapped with an aluminium adhesive tape.



After installation of the trace heating cable, the pipes must be insulated with a minimum of 20mm lagging (Armaflex/PU Foam/Mineral Wool).

Recommended installation positions

Install the trace heating cable in the recommended positions for single, double & triple runs as required – see illustrations, right.





Test Report

Purchase Date

Address

.....

..... Postcode

Installation Date
Signature

Starting Up Date
Signature

Test protocol

Record the insulation resistances of your installation in the format below.

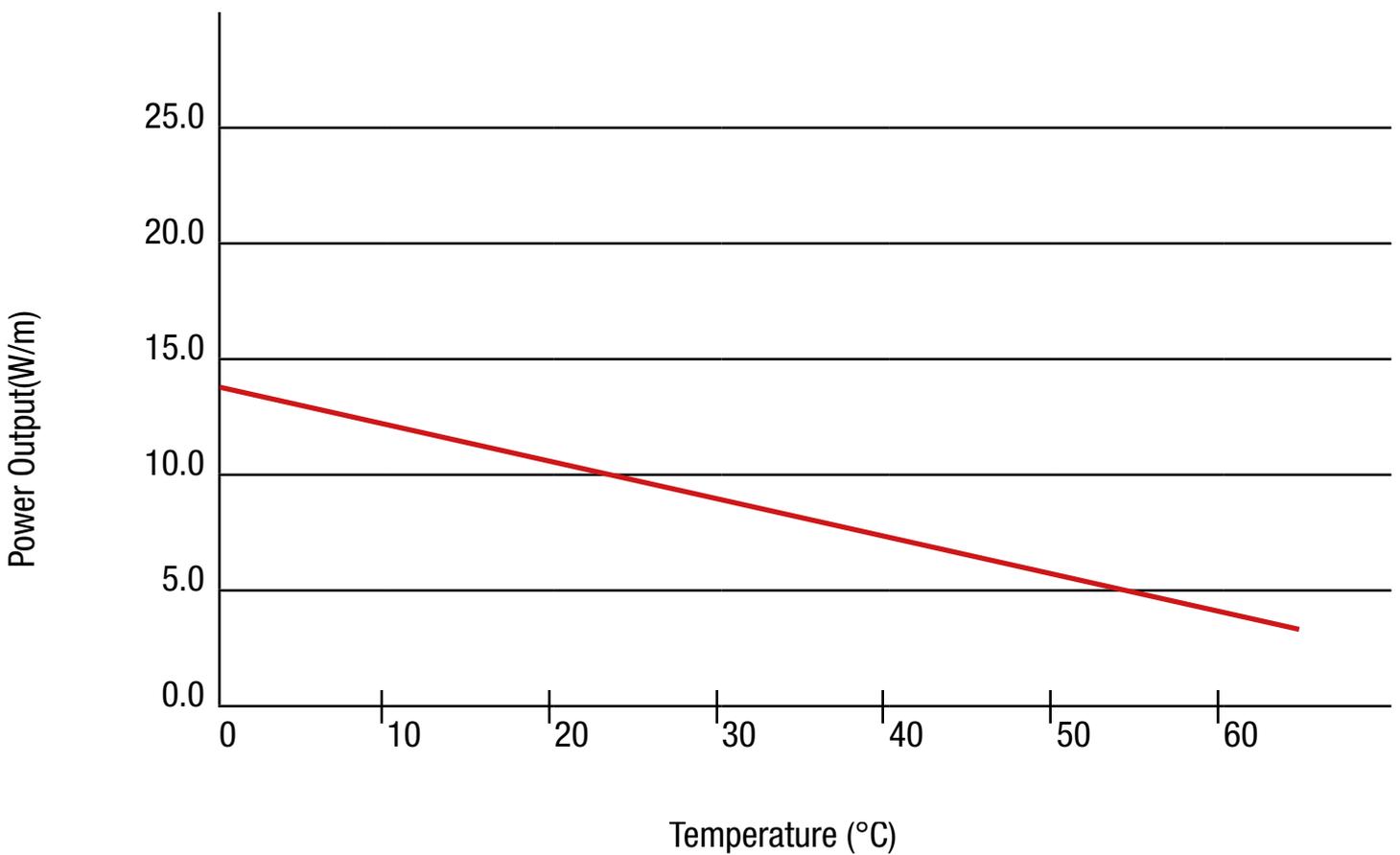
Before Installation	MΩ
After Installation	MΩ
Start Up	MΩ

Heating Power Selection

Power output curve

The characteristic feature of the heating tape used in trace heating cable is that they are self-limiting. This means that the heating cable emits a high heating power with low ambient temperatures and a low heating power with high ambient temperatures, which means an overheating of the heating tape is eliminated.

The trace heating cable has a standard power of 12W/m. The standard power is measured at +10°C.



Heating Power Selection

Heat loss tables

Heat losses occur if the ambient temperature around the pipe is lower than the temperature of the pipe. Though a permanent heat transmission takes place (from warm to cold) which may lead to the freezing of the pipe in the worst case.

The trace heating cable is suitable for keeping insulated pipes frost-free at an ambient temperature of lower than -30°C . The tables on the following page are intended to make it easier for you to choose the right insulation thickness. The heating losses shown in these tables were established for an ambient temperature of -20°C .

Please install the heating cables only alongside the pipe. In case the power of the heating cable is not sufficient to offset the heat loss, increase the number of insulation layers or thickness.

Please be aware that the shown values are approximate values only and are intended to help only with selection. The insulation values are just average values which may differ with individual suppliers/manufacturers.

The measuring unit for the heat loss is W/m.

Armaflex Insulation (0.042W/m K)

Pipe Ø	Insulation Thickness				
	5mm	10mm	15mm	20mm	30mm
6mm	8 W/m	6 W/m	5 W/m	4 W/m	3 W/m
8mm	10 W/m	6 W/m	5 W/m	4 W/m	4 W/m
10mm	11 W/m	7 W/m	6 W/m	5 W/m	4 W/m
15mm	15 W/m	8 W/m	7 W/m	6 W/m	5 W/m
22mm	21 W/m	10 W/m	8 W/m	7 W/m	5 W/m
28mm	26 W/m	12 W/m	9 W/m	8 W/m	6 W/m
35mm	32 W/m	14 W/m	10 W/m	9 W/m	7 W/m
42mm	37 W/m	16 W/m	12 W/m	10 W/m	7 W/m
54mm	47 W/m	19 W/m	14 W/m	11 W/m	8 W/m



Heating Power Selection

PU Foam Insulation (0.025W/m K)

Pipe Ø	Insulation Thickness				
	5mm	10mm	15mm	20mm	30mm
6mm	5 W/m	4 W/m	3 W/m	3 W/m	2 W/m
8mm	6 W/m	4 W/m	3 W/m	3 W/m	2 W/m
10mm	7 W/m	5 W/m	4 W/m	3 W/m	3 W/m
15mm	9 W/m	6 W/m	4 W/m	4 W/m	3 W/m
22mm	13 W/m	7 W/m	5 W/m	4 W/m	4 W/m
28mm	15 W/m	8 W/m	6 W/m	5 W/m	4 W/m
35mm	19 W/m	10 W/m	7 W/m	6 W/m	4 W/m
42mm	22 W/m	11 W/m	8 W/m	6 W/m	5 W/m
54mm	28 W/m	13 W/m	9 W/m	8 W/m	6 W/m



Mineral Wool Insulation (0.035W/m K)

Pipe Ø	Insulation Thickness				
	5mm	10mm	15mm	20mm	30mm
6mm	7 W/m	4 W/m	4 W/m	3 W/m	3 W/m
8mm	8 W/m	5 W/m	4 W/m	4 W/m	3 W/m
10mm	10 W/m	6 W/m	5 W/m	4 W/m	3 W/m
15mm	13 W/m	8 W/m	6 W/m	5 W/m	4 W/m
22mm	18 W/m	10 W/m	8 W/m	6 W/m	5 W/m
28mm	22 W/m	12 W/m	9 W/m	7 W/m	6 W/m
35mm	26 W/m	15 W/m	11 W/m	9 W/m	7 W/m
42mm	31 W/m	17 W/m	12 W/m	10 W/m	7 W/m
54mm	39 W/m	21 W/m	15 W/m	12 W/m	9 W/m



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